

Description of a New Gregarious Species of *Aleiodes* Wesmael (Hymenoptera: Braconidae: Rogadinae)

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Abstract.—*Aleiodes leptocarina* Fortier, a new species from Costa Rica, is described and illustrated. Specimens were reared from a large lepidopteran caterpillar, making this species one of only three presently known gregarious *Aleiodes* species. Morphological comparisons are made with *A. stigmator*, the other New World gregarious species.

The rogadine braconid genus *Aleiodes* Wesmael is worldwide in distribution (Shaw *et al.* 1997). Fortier and Shaw (1999) list 208 *Aleiodes* species worldwide. Evidence (Fortier, unpublished data) suggests that it may be far more species-rich in the Neotropics than had heretofore been known.

Species of tribe Rogadini, to which *Aleiodes* belongs, are koinobiont endoparasitoids of more or less exposed lepidopteran larvae (Shaw 1983, 1994; Shaw and Huddleston 1991; Shaw 1995, Fortier and Shaw 1999). A characteristic of Rogadini is that pupation takes place inside the dead host's larval skin, which hardens and darkens to become a 'mummy' (Shaw and Huddleston 1991).

Aleiodes host mummies can usually be distinguished from those of its putative sister group *Rogas* (Whitfield, 1992) in that 1) a slit is cut in the ventral area of the host's thoracic region, through which a sticky substance is emitted, which often functions to glue the mummy to a substrate, and 2) the emergence hole cut by the emerging adult parasitoid is normally less jagged and more circular as compared with *Rogas* (Shaw 1995, 1997; see Fig. 8 this paper).

Fortier and Shaw have argued that basal *Aleiodes* species tend to be less host specific while derived species tend to feed ex-

clusively on non-catocaline noctuids. They suggest an evolutionary pattern for koinobiont endoparasitoids in which more derived species tend to have narrower host ranges than less derived species (Fortier and Shaw 1999).

Evidence (Fortier and Shaw 1999) suggests a coevolutionary trend between *Aleiodes* and their lepidopteran hosts. Basal host families are more likely to be attacked by basal *Aleiodes* species while the most derived host family, Noctuidae, is more likely to be attacked by derived *Aleiodes* species.

So far as known previous to this study, only two *Aleiodes* species, a Palaearctic species and the Nearctic species *A. stigmator* (Say), are gregarious (Shaw and Huddleston 1991, Shaw 1997).

METHODS

This species can be identified as a member of the subfamily Rogadinae by using the keys of Shaw (1995), Shaw and Huddleston (1991), or Wharton *et al.* (1997). My definition of *Aleiodes* follows that of van Achterberg (1991), Fortier and Shaw (1999), Shaw (1993), and Shaw *et al.* (1997). Specimens can be determined as *Aleiodes* using the key of Shaw (1997).

Terminology follows that used by Shaw *et al.* (1997). Microsculpture terminology follows that of Harris (1979). Wing vein



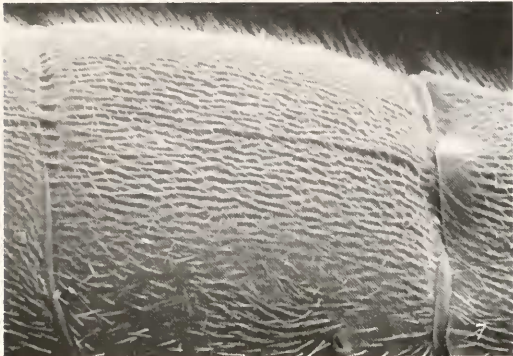
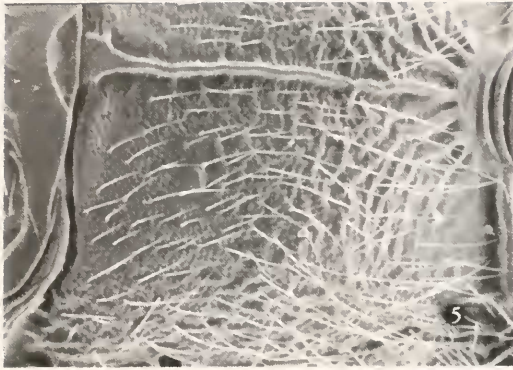
Figs. 1–4. *Aleiodes leptocarina*. 1, Head. 2, Mesopleuron. 3, Flagellomeres near middle of antenna. 4, Wings.

terminology agrees with that adopted by Wharton *et al.* (1997) and by Goulet and Huber (1993).

***Aleiodes leptocarina* Fortier, new species**
(Fig. 1–7)

Female.—**Body color:** honey yellow, legs and mandibles honey yellow except mandibular teeth and ocellar triangle black, clypeus occasionally with black; antennomeres dark honey yellow, wings hyaline, veins, stigma dark honey yellow. **Body length:** 6–7 mm; fore wing length, 5.5–6.0 mm. **Head:** 44–46 flagellomeres, first flagellomere length about 1.6 times width, 20th flagellomere length about 1.5 times width (Fig. 3); oral opening height slightly greater than or equal to width, clypeus protruding with distinct apical edge (Fig. 1); occipital carina interrupted at apex and not meeting hypostomal carina; ocelli moderately large, slightly

greater than ocell-ocular distance; face finely colliculate; longitudinal ridge between antennae occasionally extending down face up to 0.35 length of antenno-clypeal space; vertex colliculate; temples colliculate. **Mesosoma:** pronotum colliculate; mesonotum and scutellum colliculate; notauli without carinae; mesopleuron finely colliculate with a dull shine, subalar groove without carinae, sternaulus absent (Fig. 2); propodeum rugose or rugulose posteriad, faintly rugulose over colliculate surface anteriad, or without rugae (Fig. 5). **Legs:** tarsal claws of all legs completely pectinate (Fig. 6); hind coxae evenly colliculate dorsally and laterally. **Wings** (Figs. 4): hyaline; front wing vein r about half the length of 3RSa and about 1.3 times length of rm; vein 1CU-a about 0.8 length of 1CU-b; rear wing vein m-cu absent; RS slightly recurved, marginal cell narrowest at midpoint; vein r-m shorter than vein 1M; vein 1A meeting and terminating at



Figs. 5–8. *Aleiodes leptocarina*. 5, Propodeum. 6, Metatarsal claw. 7, Second metasomal tergite. 8, Dorsal view of host caterpillar.

apex of vein cu-a; vein M+CU over 1.5 times as long as vein 1M. **Metasoma:** metasomal tergite weakly rugulose, raised transverse carinae of first metasomal tergite at base joining medially to form median carina, median carina becoming fainter apically, first metasomal tergite length slightly less than or equal to apical width, basal width slightly greater than 0.5 apical width; second metasomal tergite weakly rugulose, median carina weak, occasionally absent in apical (Fig. 7); third metasomal tergite mostly shiny, finely colliculate with faint rugulation antero-medially, median carina usually absent basally, never present apically; tergites apical of third metasomal tergite smooth; ovipositor sheath length about 0.35 times basitarsis length.

Male.—Essentially as in female, except 41–43 flagellomeres, 20th flagellomere length over twice the width, forewing

length 5.0–5.5 mm., first metasomal tergite length slightly greater than apical width, third metasomal tergite weakly rugulose in basal half, weakly rugulose or shiny-colliculate in apical half, median carina occasionally weakly present in basal half.

Holotype.—Female: COSTA RICA, Cartago, P. N. Tapanti, 1150 m., LS194000, 559800, IX-5-1995, G. Mora, collector. Deposited in INBio.

Paratypes.—COSTA RICA: 76 females, 15 males, Cartago, P. N. Tapanti, 1150 m., LS194000, 559800, IX-5-1995, G. Mora, collector. Paratypes deposited in INBio, Wheeling Jesuit University Insect Collection, Texas A&M Department of Entomology Insect Collection, and Rocky Mountain Systematic Entomology Laboratory.

Distribution.—Known only from Costa Rica.

Biology.—Holotype and paratypes all reared from a single lepidopteran host

(Donald Davis, personal communication) (Fig. 8) about 7 cm. long.

Comments.—This species and *A. stigmator* (Say) are the only described gregarious New World species. The tarsal claw is closely similar to that of *A. stigmator* in arrangement of the pectin and in overall shape. This species differs from *A. stigmator* in having more than 34 antennomeres, clypeus protruding with distinct apical edge, shiny mesopleuron, finely reticulate rugulation on first and second metasomal tergites, and females with little or no rugulation on third metasomal tergite. Morphological features including short pronotum place it in the *gastritor* species-group. *A. stigmator* is also in this species-group (Fortier and Shaw 1999, Shaw *et al.* 1997). The clypeus protruding and edged apically is a derived character state found elsewhere in the *gastritor* species-group.

Etymology.—From the Greek *leptos* meaning "fine, delicate," and *carina* meaning "ridge," in reference to the finely reticulate rugulation on the first two metasomal tergites.

ACKNOWLEDGMENTS

I thank Ugalde Gomez Jesus, curator of the Hymenoptera collection at INBio, Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica, who provided specimens for this study. Thanks are due Scott R. Shaw, curator of the Rocky Mountain Systematic Entomology Laboratory, University of Wyoming, Laramie, Wyoming, who made those specimens accessible to me. I also thank Ms. Diane Barry at NIOSH (National Institute for Occupational Safety and Health) in Morgantown, West Virginia, for her assistance with the Scanning Electron Microscope and photography. I would also like to thank Mark Shaw and Don Quicke for reviewing the manuscript and offering constructive comments, and Don Davis for identifying the host.

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